

U.S. Patent Application Serial No. 09/351,544

Declaration of Timothy K. Carns

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Started editing D0992A lot report again. Helped Lee with some HP 4156 measurements on Lucent wafers and verified programming pulse waveform. Called in for jury duty this afternoon.

Discussed D1114 PEval analysis with Suryanti. She almost has the report completed, there were a few questions on IBSN and IOFF. Completed D0992A lot report and submitted to Tim for review. Sent copies of 7223 NTP/DPR files and 7223 NTP documents to Tim and John per Tim's request. Started PEval analysis on D1201A. Had trouble getting correct data files for all wafers. Lee provided his PEval file so I started removing obviously bad data in preparation for rerunning crunchcut.

Discussed D1114 low field V_T values with Suryanti. Certain sites on wafers 3, 4, and 19 have 2V field V_T , but remaining sites are ~30V. There is no obvious cause; P+ bridging and continuity structures are not present. BVSS and leakage for the devices are acceptable. Discussed Lucent CHISEL cell layout with Lee and we did a visual inspection of their array layout.

2:00 pm 7223/7235 Poly etch meeting Blue CR

John Howarth, John Gold, Brett, Suryanti, me, Thomas, Tim, Allan van Kinsig, Bee John Smythe, Exposito, Daly, Buffat, Lee, David Hunter

L39/L40 overlapped cap looks good, but PEARL effect negated.

Problems to avoid:

1. too many steps
2. re developing steps
3. don't recreate cap leakage and Luff O
4. 7120/7223 same

- | | |
|---------|---|
| control | 1. Don't remove IPD at L39, etch at L40, lbg, Luff |
| control | 2. 50:1 BOE IPO removal at L39 undercut |
| Y | 3. use 4528 dry removal with L39 mask in place (w/ w/o resist in place) |
| Y | 4. Flow L39 resist / build more polymer at L39 etch / buy mas |
| | 5. BARC (hold) |
| | 6. if oxynitride then potentially ~ PEARL (D1168/D1549) |
| N | 7. return to 6223 flow (not feasible) |
| | 8. seal edge with RTP or dep/spacer etch |
| | 9. use IPD as ARC |
| | 10. multilayer ARC (nitride / PEARL / etc) |

Questions

1. leakage due to PEARL or undercut?

factor

PEARL

actions / levels

Y N thickness

2. quantify impact to BRSG CMP and contact etch?

IPO removal

spaces, NOT

wet, dry, polymer, m